

Environmental Assessment
of the
Strategic Energy Assessment 2002-2004
Docket 05-ES-101

Purpose of the environmental assessment

This is the environmental assessment (EA) of the 2002 Strategic Energy Assessment (SEA). This EA's purpose is to discuss generic issues presented in the SEA and describe their potential environmental impacts as required by Wis. Stat. § 196.491(2)(f).

The SEA "evaluates the adequacy and reliability of the state's current and future electrical supply." See Wis. Stat. § 196.491(2)(a). It is assumed that readers of this document are familiar with the draft SEA for the period January 1, 2002 through December 31, 2004. Wis. Stat. § 196.491(2)(f) includes all statutory language referring to the EA on the SEA:

196.491(2)(f) Section 1.11(2)(c) shall not apply to a strategic energy assessment prepared under par. (a) but the commission shall prepare a single environmental assessment on the strategic energy assessment, which shall include a discussion of generic issues and environmental impacts. The commission shall make the environmental assessment available to the public at least 30 days prior to the hearing under par. (g).

The Commission will announce the availability of this EA to groups with an active stake in the status of Wisconsin's electric energy future. These groups include:

Electricity providers that are required to file information with the Commission for the SEA:

public utilities

municipal utilities

electric cooperatives

merchant plant developers

self providers of electrical energy

State agencies, regional planning commissions, riverway boards required by Wis. Stat. § 196.491(2)(b) to receive copies of the draft SEA

Local units of government within whose jurisdiction electric facilities are proposed

Economic development and environmental groups

SUMMARY

For the 2002-2004 planning period, uncertainty about new generation and the need for an extensive upgrade of the transmission system, draws attention to these topics:

Uncertainties proposed power plants and approved but unbuilt plants increase the American Transmission Company (ATC) challenge to build a transmission system that minimizes new construction and related environmental impacts.

County and local government could reduce future environmental impacts by including existing, and potential future, electric facilities in zoning and land use plans.

County and local government could provide ATC with feedback on local resources and values as ATC develops options for major, new electric lines.

Smaller 100 MW to 200 MW power plants could likely offset some of the need for new electric transmission construction, as well as transmission upgrades.

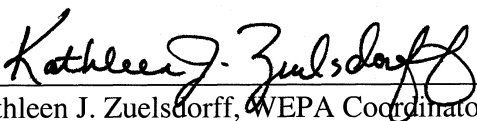
Cogeneration and other combined-cycle power plants can reduce overall environmental impacts.

Use of the latest pollution control measures can significantly reduce the air emission impacts of all types of power plants, including large coal plants and small diesel engines.

Increased use of energy efficient appliances and practices can reduce future environmental impacts.

The Strategic Energy Assessment identifies, describes, and assesses different aspects of Wisconsin's electricity picture for the following three years. This environmental assessment (EA) of the SEA discusses the potential environmental effects of the issues contained in the SEA.

This environmental assessment was prepared under Wis. Stat. § 196.491(2)(f).


Kathleen J. Zuelsdorff, WEPA Coordinator
Date: August 15, 2002

1. Transmission line and substation construction

Proposed construction

The period 2002-2004 marks the beginning of a major upgrade of Wisconsin's electric transmission system by the ATC. The ATC's construction budget is in excess of \$100 million per year over the next ten years. Transmission system improvements will include new power lines and substations, upgrades of existing lines and substations to higher voltages, and rebuilding older lines and substations to new standards. The SEA lists new power lines and other major projects for which construction will begin before 2005. ATC's Ten Year Transmission System Assessment lists further proposals and plans at <http://oasis.maininc.org/documents/ATC/10yrplanupdate.pdf>. ATC will update this document about twice a year and hold yearly public meetings in each of five planning zones in eastern Wisconsin. The ATC owns and operates the transmission that the major eastern Wisconsin utilities formerly owned and operated, as well as transmission in Illinois and Michigan. Information on ATC is available at <http://www.atcllc.com/>.

Figure (EA-1) shows the general location of new transmission lines on which the ATC plans to begin construction before 2005. It does not show lines already approved by the PSC, nor does it show proposed rebuilds and upgrades. Most of these lines are associated with proposed power plants.

New 345 kV transmission lines

The highest voltage line in Wisconsin is 345 kV. It is likely that Wisconsin will need new 345 kV transmission lines (in addition to the approved Arrowhead-Weston 345 kV line) within the next 10 years. Since it takes much time to acquire ROW and build a 345 kV line, specific planning for new 345 kV projects and application(s) to the PSC for approval of these projects are likely to occur within the next two years.

The ATC's latest plan (February 2002) includes a possible 345 kV transmission line from the Arpin Substation (located midway between Marshfield and Wisconsin Rapids) to the Columbia Substation near Portage. It also shows a possible 345 kV line from Pleasant Prairie into Illinois. These two 345 kV lines are associated with proposed generating plants. However, even if these proposed plants are not built, some new 345 kV transmission system improvements are likely to be needed due to the relatively few existing 345 kV lines in Wisconsin, and the location of the Wisconsin transmission system between the extra high voltage (EHV) systems of Minnesota and Illinois.

In addition to new 345 kV lines, some technologies new to Wisconsin may be implemented, including ac-dc-ac links (two alternating current lines with a section of direct current line between them), and Flexible AC Transmission System (FACTS) controllers, which are control devices located at substations. These technologies could improve Wisconsin's overall electric system security and economical power transfers.

Environmental impacts

The proposed transmission improvements will result in environmental impacts, both during construction and afterwards. Table EA-1 lists examples of these impacts. Further information is available in the PSC publication "Environmental Impacts of Electric Transmission Lines," also available on the internet at www.psc.wi.gov/consumer/electric/overview.htm

Figure EA-1 Proposed High-Voltage Transmission System Additions

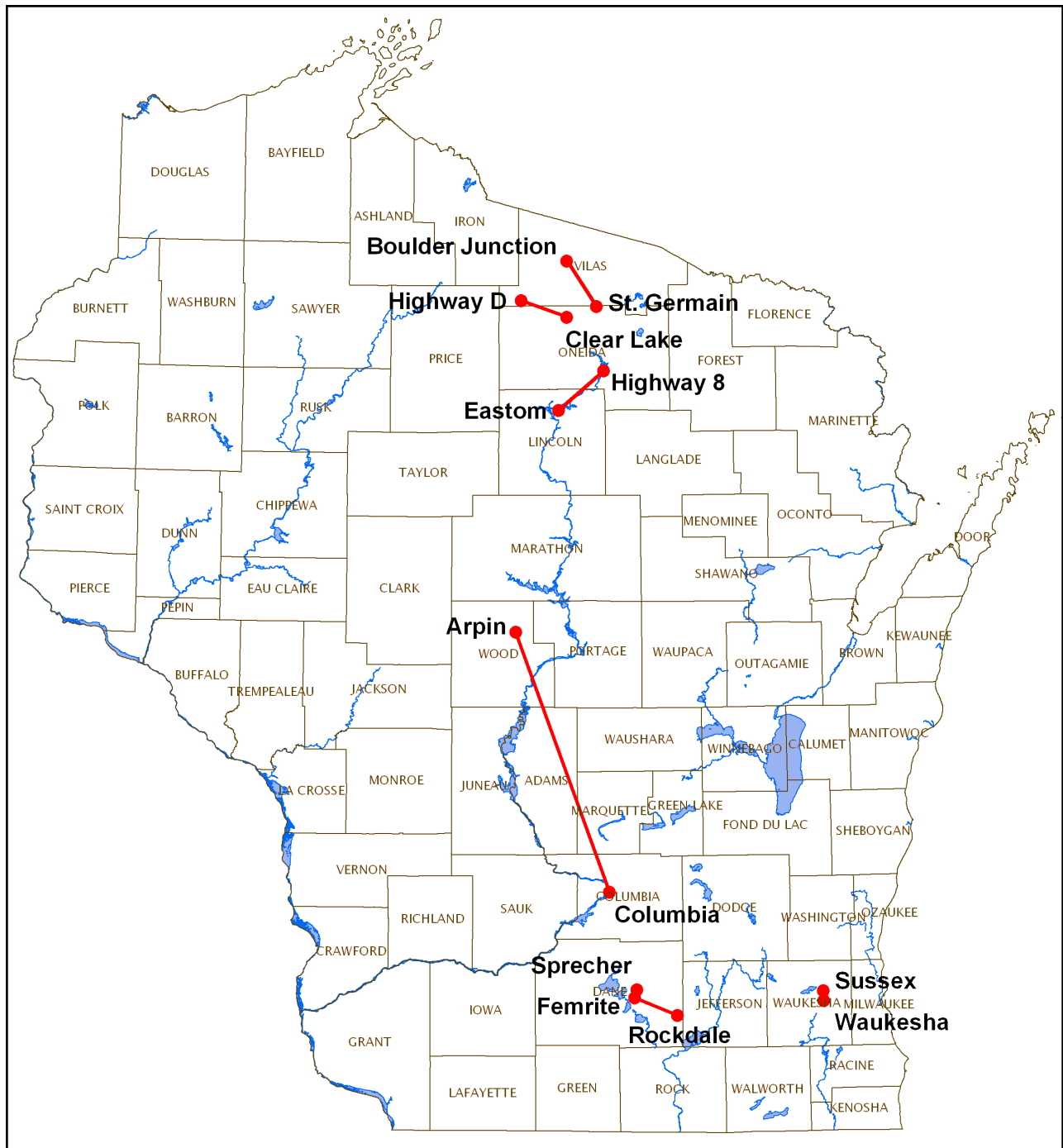


Table EA-1 Examples of Long- and Short-Term Impacts of Power Line Construction	
During construction	After construction
Destruction of vegetation, e.g. damage to wetlands and crops, loss of yard trees and woodlands	Limits on future right-of-way use, e.g. no buildings or tall trees, no center pivot irrigation
Disruption of wildlife habitat	Physical presence, e.g. poles interfering with plowing, bird collisions with wires
Soil erosion, soil compaction, potential run-off into streams and other waterbodies	Fragmentation and loss of wildlife habitat; permanent changes in wetland hydrology
Noise and dust effects on health of people, animals, and plants	Change in aesthetics and visual quality of landscape

The many changes and additions within existing substations, such as transformer additions, and adding capacitors and relays, would have little or no effect on Wisconsin's environment. New substations or expanded substations would have the same construction effects as new power lines. Their long-term effects include changes in use of the land, and the possibility of connections with future transmission lines.

Alternatives to transmission line construction

There are several reasons that ATC is proposing to improve the electric system. Some of these reasons allow for alternatives to transmission line construction. However, much of the proposed construction, especially the rebuilds and upgrades, are needed for reasons that would not be satisfied by non-transmission alternatives. Table EA-2 shows the major reasons for upgrading the electric system and some possible alternatives.

Table EA-2	
Possible reasons for construction	Possible alternatives that reduce the need for construction or the amount of construction
<p><i>Increased electricity use</i></p> <ul style="list-style-type: none"> • Wisconsin residents are using more electricity overall • Wisconsin residents use more electricity at the same time (peak summer use) • New housing/business developments and industrial parks increase electricity use at new locations <p><i>Increased power transfers</i></p> <ul style="list-style-type: none"> • Wisconsin imports over 30 percent of its electricity • Power transfers in and through WI have increased • Sales of Wisconsin-produced off-peak power out-of-state can offset purchase costs <p><i>Transmission service for new power plants</i></p> <ul style="list-style-type: none"> • New power plants must be connected to the existing transmission system without degrading the stability or reliability of the existing system • Federal Energy Regulatory Commission (FERC) requires the ATC to provide a transmission system that allows a power plant owner to sell electricity to its customers regardless of the customer's location 	<ul style="list-style-type: none"> • Electricity users incorporate energy efficiency in new buildings and appliance purchases • Retail electricity providers increase amounts of load management to decrease peak use • Retail electricity providers, municipalities, cooperatives, et. al. build more generating plants to serve Wisconsin electric loads. • Retail electricity providers, et. al. build small power plants near load centers (distributed generation), especially cogeneration plants (that produce electricity & steam) • ATC encourages power plant developers to site new power plants at locations on the electric system that minimize the amount of new transmission line needed to interconnect to the system and sell power

Ways to Minimize Environmental Impacts

Identifying alternatives that serve more than one purpose

As part of its planning process, ATC seeks to identify solutions that will solve more than one problem and that will provide the most benefits to the electric system. This will generally reduce overall costs and environmental impacts, because ATC would ultimately construct fewer transmission projects. For example, power producers commit to five-year periods when requesting

transmission service for a particular sale. ATC has no guarantee that the power producer will renew its five-year contract with the ATC. Therefore, if ATC must improve the transmission system to provide service to the producer for a particular sale, ATC looks for an alternative that would facilitate many possible, future sales from the power plant. In addition, ATC would look for alternatives that also meet the transmission needs of growth in local energy use. Identifying alternatives that provide the most flexibility for meeting future needs is especially important during periods of uncertainty, such as the present. (Refer to the last section of this document for examples of current uncertainties that may affect the environmental impacts and costs of Wisconsin's electric system.)

Factoring environmental data into transmission planning

ATC is working with the PSC on developing a process for factoring environmental information into transmission planning. This is important because some alternative solutions may have the potential to create less environmental impact than other solutions. For example, an Arpin – Columbia 345 kV line would cross the Wisconsin River and would pass through an area with many valuable natural features. Another 345 kV connection from the Arpin Substation would probably impact fewer resources.

Siting power plants to reduce the need for new transmission

At present, the ATC has no means for steering potential power plant developers to sites at which fewer transmission lines are required for interconnection and sales. This is a major problem from an environmental standpoint, because often the greatest impact of a power plant is due to its associated facilities, such as transmission lines, natural gas pipelines, or water supply lines. In addition, more people are directly affected by transmission rights-of-way than power plant sites, and developers acquire plant sites from willing sellers, while it is possible for the ATC to acquire transmission rights-of-way through condemnation.

Commonwealth Edison has an internet site that identifies good locations for new power plants, and the maximum desirable size of a new plant at each location. These locations were chosen from the standpoint of requiring fewer new electric lines and upgrades. There are many other important factors to consider in siting a power plant, such as the presence of water or natural gas supplies. However, reducing the negative impacts to the existing transmission system is also important as usually this significantly reduces the costs and environmental impacts of new generation.

Siting 100 MW to 200 MW power plants on the Wisconsin system

Many of the power plants currently proposed are about 1,000 MW in size or more. An addition of this sort anywhere on the existing Wisconsin transmission system is likely to require extensive upgrades and new power lines. However, power plants about 100MW to 200 MW in size, if placed in locations where the existing transmission system is weak, could decrease the overall need for new transmission line construction. Places in which the existing transmission system will probably require new transmission lines to meet local load growth include:

- The Reedsburg area
- The area between Springbrook and Horicon
- Walworth or Jefferson County
- The Spring Green – Darlington area
- Somewhere along the loop between Merrill, Tomahawk, Rhinelander, Monico, and Antigo

Rebuilding and upgrading

The ATC is seeking to minimize environmental impacts by upgrading or rebuilding existing transmission lines as much as possible, rather than building new lines. Generally, this reduces environmental impacts because land use has grown around an existing transmission line. However, there are exceptions. A lower voltage line may not be routed in the best place for a higher voltage line, or an older, existing transmission line may have been poorly routed. If the proposed upgrade uses existing right-of-way, and does not exceed a cost threshold, the PSC does not review the project.

Corridor-sharing

The PSC has long endorsed the use of corridor-sharing to minimize the impacts of new transmission lines. Corridor-sharing means to place a new transmission line right-of-way overlapping or adjacent to an existing right-of-way, such as another transmission line, a road, railroad, or natural gas pipeline. The ATC looks for the location of existing rights-of-way as one indication that routing a line may be possible in a particular area. While corridor-sharing usually minimizes impacts, existing rights-of-way may not be good locations for new power lines, depending on specific local conditions. Refer to the Overview on the Environmental Effects of Power Lines for further information.

2. Power plant construction

Proposed construction

The SEA 2002 lists proposed generation for which construction could begin before 2005. The PSC has approved 2,033 MW of generation at three sites, but no construction has yet begun. The PSC is reviewing applications, or expects to receive applications for 6,883 MW of generation at 18 sites.

Independent power producers (IPPs) are proposing the majority of these power plants. For this reason, it's uncertain when or whether the PSC will receive applications for all of these plants, or whether construction will begin on these plants, if approved. This uncertainty exists, because the IPPs build generation based on their assessment of market conditions, which at present are uncertain. Retail electric service providers, not IPPs, are the entities responsible for providing electricity to Wisconsin customers. All existing IPP plants in Wisconsin have contracts with Wisconsin's electric service providers. One IPP plant is being acquired by a Wisconsin utility.

Fuel use

The majority of proposed plants would use natural gas as a fuel. There are some concerns over the amount (and future costs) of natural gas needed for all of the proposed new generating capacity. Natural gas use could increase by a factor of seven. Refer to the SEA 2002 for more information.

We Energies (WE), a subsidiary of Wisconsin Energy Corporation (WEC), proposes to build three coal-fired units at the existing Oak Creek site. No coal plants have been built in Wisconsin since 1985.

Due to concerns about the reliability of electric service, many individuals and institutions have bought diesel generators to provide electrical backup in the event of a power failure. There is no way of identifying the number of these plants, since no entity gathers information on generators smaller than 5 MW. Diesel-fired plants are also the type of plant that is most likely to be built or owned by small retail electric service providers, such as municipalities.

Load factor

Another concern raised in the SEA is the potential need for additional base-load generation (plants that operate 24 hours per day, 365 days per year). Megawatt hour (MWh) sales for the state continue to increase at 2 percent per year while no base-load generating units have been placed in service since 1985. Since the mid-1990s, the Commission has expressed concern over the lack of new base-load plants in Wisconsin. WE's proposed coal-fired plants would be base-load plants. Most of the other proposed plants would be peak-, or intermediate-load plants.

Environmental effects of generating plants

Generating plants are one of the sources for the air pollutants that cause or exacerbate asthma and other lung diseases. Figure EA 2 shows the relative efficiencies of different types of fuels and generating plants. The more efficient a plant, the fewer pollutants are produced per amount of electricity generated. Figures EA 3 through EA 6 compare the air pollutant emissions of different fuels and types of power plants. The main conclusion that can be drawn from these figures is that the use of up-to-date air pollutant control devices is more important to overall environmental impact than the type of fuel used, or the type of power plant.

Figure EA-2 Power Plant Efficiencies (%)

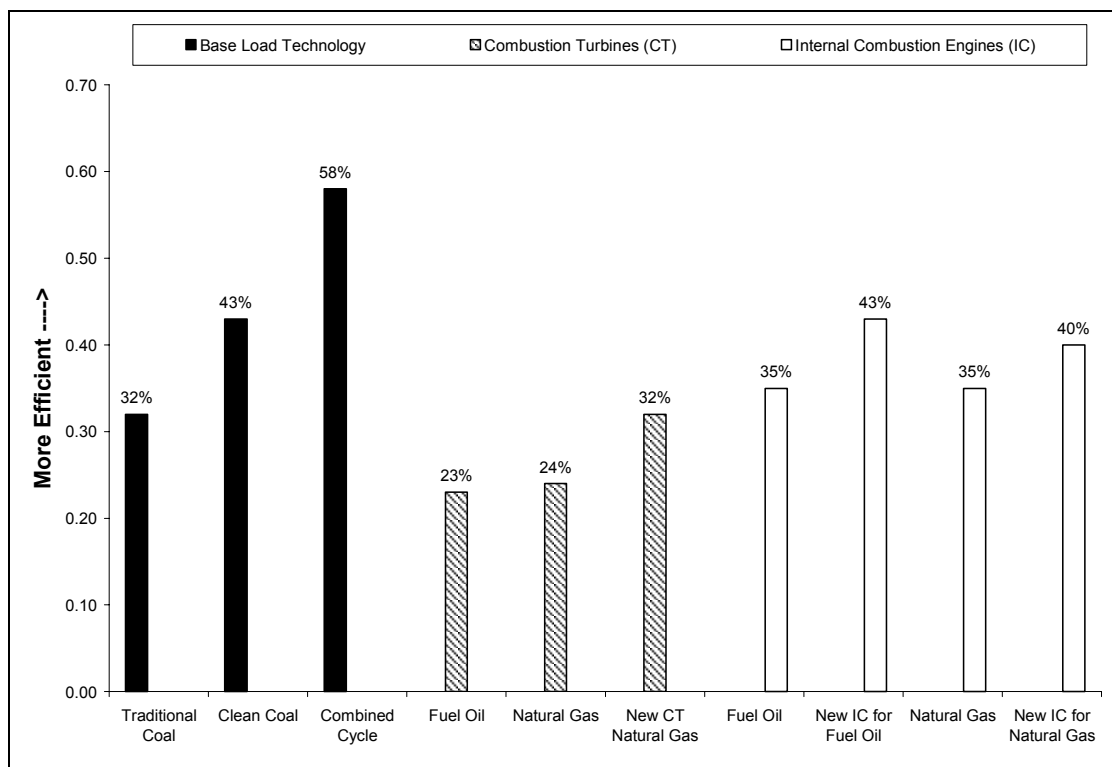


Figure EA-3 Comparing CO₂ Emissions between Types of Power Plants and Fuels in Pounds per Use (MWh)

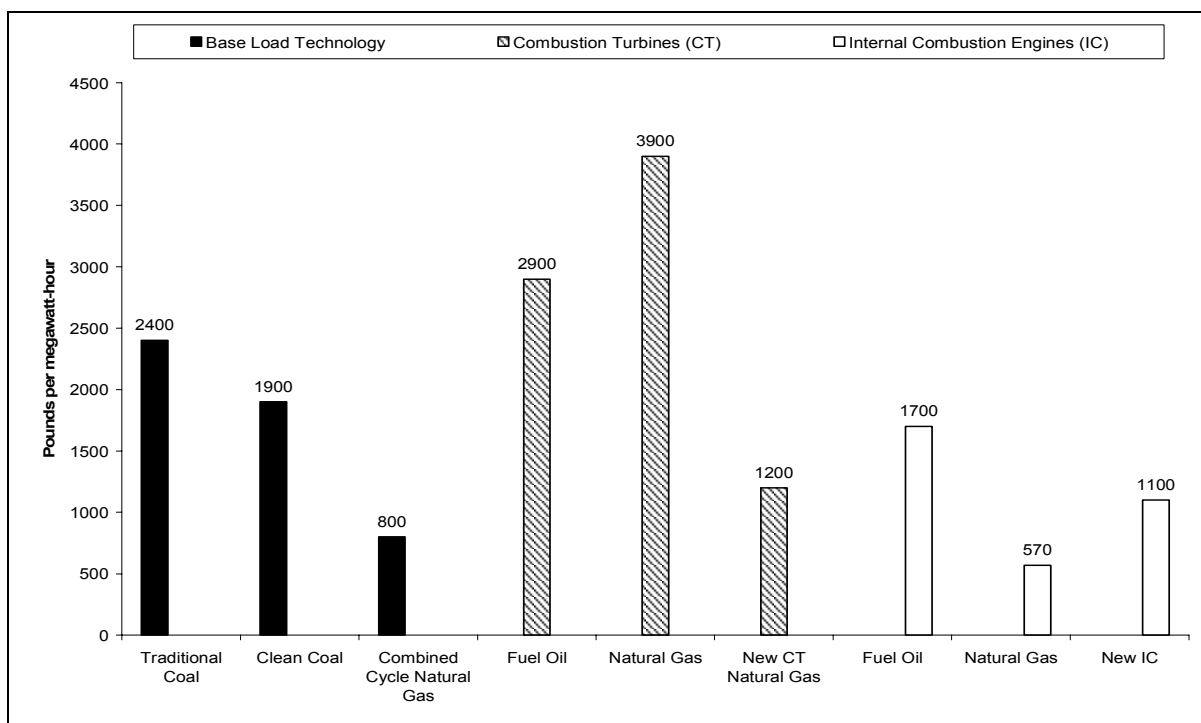


Figure EA-4 Comparing PM₁₀ Emissions between Types of Power Plants and Fuels in Pounds per Use (MWh)

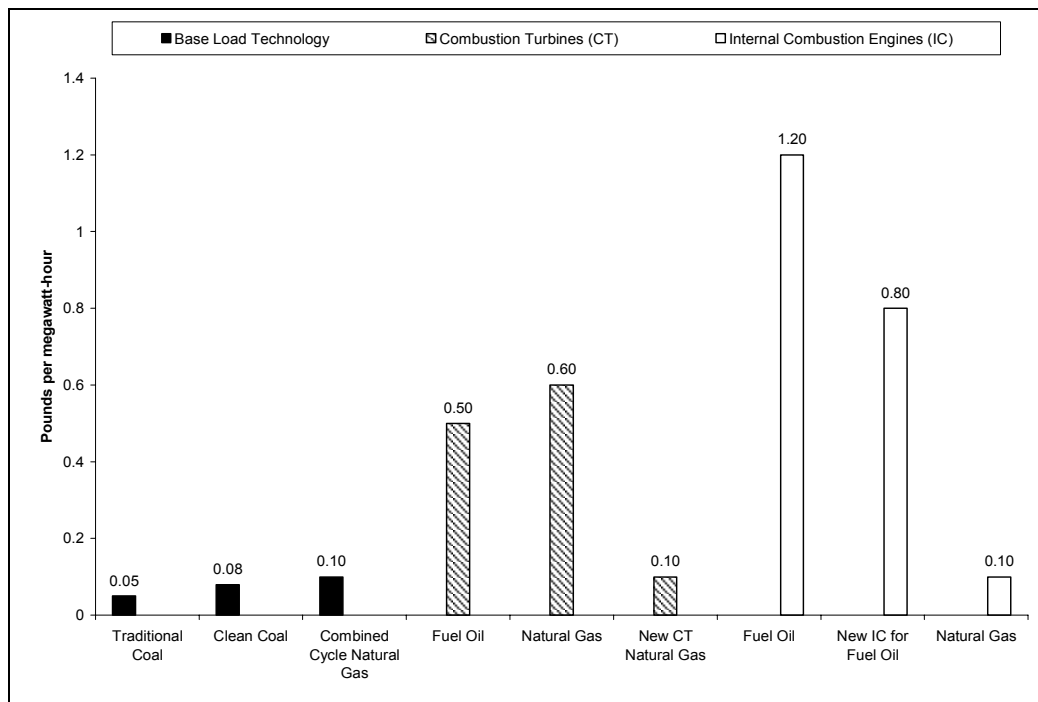


Figure EA-5 Comparing NO₂ Emissions between Types of Power Plants and Fuels in Pounds per Use (MWh)

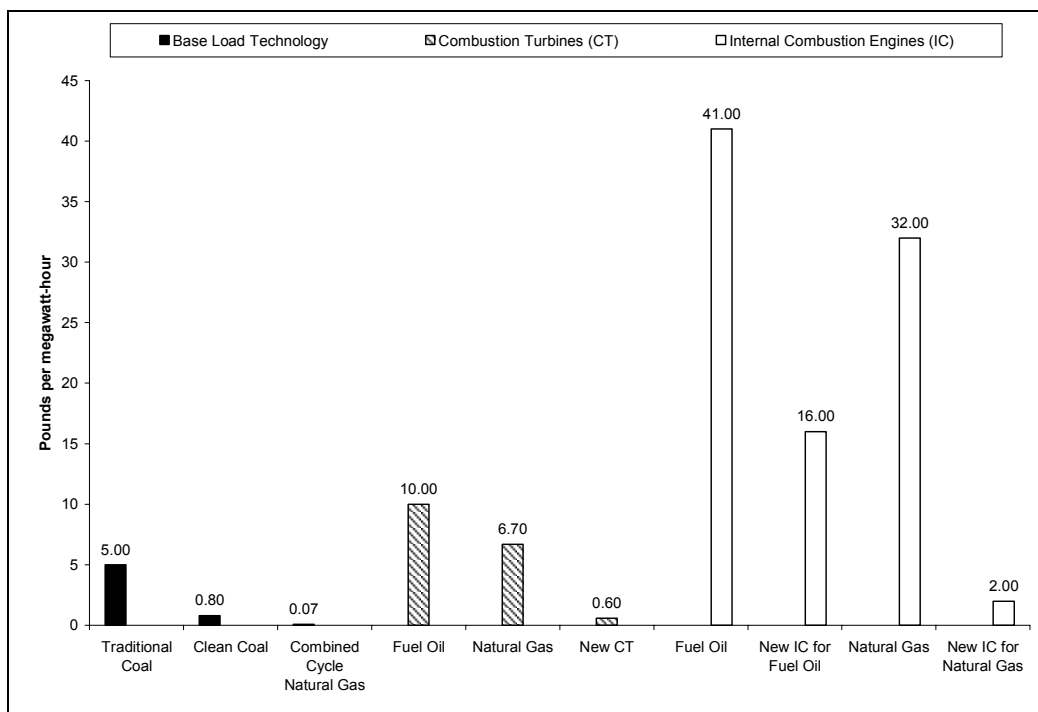
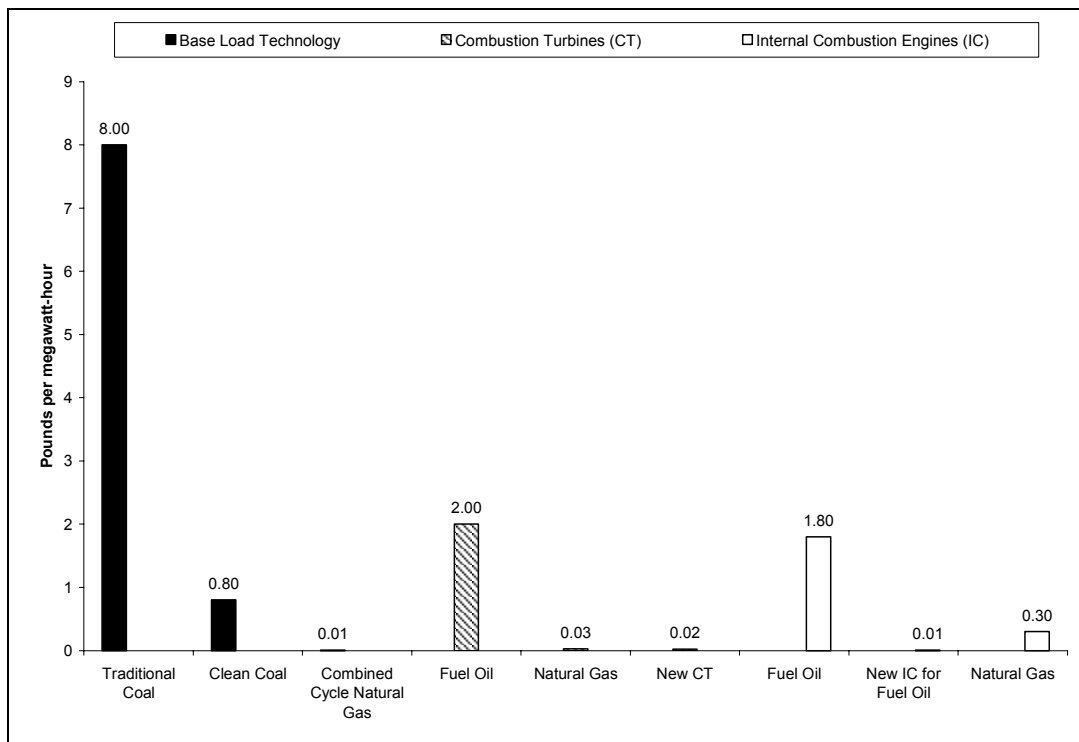


Figure EA-6 Comparing SO₂ Emissions between Types of Power Plants and Fuels in Pounds per Use (MWh)



Natural gas-fired power plants

Natural gas-fired power plants have little difficulty meeting current standards for emission of air pollutants. For these plants, the potential environmental impacts of most concern are the effects of associated facilities, such as water intake/ discharge structures, water lines, electric transmission lines, and natural gas pipelines. In addition, depending on the plant location, concerns may center on noise, traffic, and visual effects close to the plant site. People living near proposed natural gas-fired power plant sites are often concerned about negative effects on their property values, due to noise levels, and plant site aesthetics.

Coal-fired power plants

Coal-fired power plants create environmental effects in addition to those of natural gas-fired plants. Coal-fired plants produce sulfur dioxide, a regulated air pollutant, and mercury, for which the Wisconsin DNR is proposing emission rules. Coal plants produce a significant amount of waste in the form of ash and/or sludge, which must be recycled or placed in a landfill with appropriate lining. In addition, there are environmental effects associated with coal mining, delivery, storage, and handling.

Diesel-fired power plants

Among the fossil fuel-fired power plants, those fueled by diesel (fuel oil) produce the most air pollutants per unit of electricity. The use of diesel-fired power plants is increasing, because they are an economic choice for distributed generation (small units located near users), peak generation, and

emergency back-up generation. These units do not need natural gas pipelines, large electric lines, or water lines. They usually connect directly to the substations or transformers that serve load.

Because these units are small, pollution control devices are usually not needed to meet air emission standards. However, when looking at the amount of air pollutants produced per unit of electricity, the importance of air pollution controls becomes evident. (See Figures EA-3 through EA-6). In addition, diesel units are most likely to be operated during peak energy demand periods such as hot, humid summer days when air quality concerns already exist.

Alternatives to building new generating facilities

The PSC cannot consider potential supply alternatives for power plants proposed by IPPs. For WE or other business units associated with a Wisconsin electric utility, the PSC would look at increased energy efficiency, increased load management, smaller or larger units, different fuels, and use of renewable resources.

The PSC requires power plant developers to identify, and provide information for alternative power plant locations. For power plants proposed at existing plant sites, the PSC may accept an alternative location on the existing site. Two sites allows for the possibility that, if the proposed site turns out to be somehow less desirable than the alternate site, the PSC could approve the alternate site. The PSC also requires a power plant application to include a discussion of the criteria and methods used to identify and choose a proposed site.

Reducing the environmental impact of power plants

Building more power plants and building base-load plants

Building more power plants may improve the overall air quality in Wisconsin for two reasons. First, because the lack of new power plants and the constraints on the existing transmission system are causing utilities and other generation owners to postpone retiring older plants. Generally, older power plants have fewer efficiencies and less effective pollution controls than the current generation of plants. Second, owners will operate their existing plants more often. Engineers design power plants for a particular mode of operation, and design pollution controls to work optimally for that mode of operation. It is probable that increased plant operation would decrease the effectiveness of pollution control equipment. New generation would speed retirement of aged generation and allow optimal operation of existing generation. Base-load generating units are also generally more efficient (produce more electricity from the same amount of fuel) than intermediate or peaking units.

Adding 345 kV transmission lines

Adding 345 kV lines would allow significantly increased imports of power from out of state, thereby reducing the need for new generation in Wisconsin. However, the existing transmission system would still need rebuilding and upgrading because off-peak sales of power out of Wisconsin tend to overload the lower voltage system.

This alternative would increase the environmental impacts due to new electric transmission lines. In addition, since Wisconsin receives air-born pollutants from other states, it is likely that not all of the impacts associated with generation could be avoided.

Increased use of renewable resources

Increased use of wind generation could offset some of the need for and impacts of new, fossil fuel-fired power plants and the impacts related to them. However, wind generators create a hazard for birds. The use of biomass as a fuel could contribute to the economy, but would produce carbon dioxide, because it is a fossil fuel. Biomass includes wood, wood and paper waste, herbaceous plants, plant products, biogas from landfills, wastewater treatment, and on-farm anaerobic digestion of manure.

Increased use of cogeneration and other combined-cycle plants

Since combined-cycle plants increase the efficiency of fuel use, the increase in these types of units would reduce the amount of all pollutants produced per unit of usable electricity. The PSC has approved combined-cycle plants for which construction has not yet begun.

Cogeneration is a type of combined-cycle plant that produces steam in addition to electricity. This steam may be used for industrial processes or district heating. At present, only Madison Gas and Electric Company is proposing to build a cogeneration plant (132 MW of natural gas-fired cogeneration).

ATC identifies possible locations for new power plants

It may be possible for ATC to identify the locations at which power plants would require the fewest number of associated electric transmission lines for interconnection and sales. Commonwealth Edison (CE) has produced such a map to guide potential power plant developers to specific sites in Northern Illinois. CE's website is: <http://www.comedtransmission.com/trsht/preferred.ipp.site.info.html>.

3. The relation between transmission lines and power plants

Introduction

The presence of electric transmission lines on or near a power plant site does not mean that the proposed plant requires no new transmission lines. It is not the geographic location of the power plant that is important to the electric system, but the "electrical" location of the power plant. Only interconnection studies by the ATC or other transmission owners can identify the way to place a new power plant on the electric system, without degrading the existing system's reliability or stability.

When the PSC prepares an EIS on a proposed power plant, the EIS includes a discussion of the potential environmental impacts of the plant's associated facilities, such as natural gas pipelines, water pipelines, and electric transmission construction. To identify the potential electric lines needed for interconnection and power sales, the PSC requires the power plant application to include an interconnection study performed by the ATC.

Identifying transmission lines needed by a proposed power plant - ATC's interconnection studies

The interconnection study is actually a number of computer runs summarized under three categories: short circuit study, stability study, and thermal study. Stability and thermal studies are

most likely to identify the need for new, rebuilt, and upgraded transmission lines and substations. A thermal study shows the changes to the existing system that are needed to allow the proposed plant to connect to the existing system, without reducing the reliability of the system. The interconnection study also identifies changes to the system that are likely to be needed in order to allow contracted sales of electricity from the power plant to its customers.

The interconnection study includes many assumptions about electricity load levels, power transfers, and power plant operations. At this time, the greatest uncertainty centers on what power plants are assumed to be in-service. The assumptions about load levels and power transfers are meant to represent worst-case conditions. However, there is no guarantee that they are the actual worst-case conditions.

Environmental and landowner information

The ATC applies for approval of transmission improvements needed for interconnection of a new power plant and power dispatch at the same time the power plant developer applies for approval. The ATC application includes environmental information on necessary interconnections and substations, upgrades, and rebuilds and the names of affected landowners. The PSC reviews both the power plant and transmission line application together.

If transmission improvements requested for power sales would be built two or three years after the power plant, or if the improvements are dependent on other generation not yet in-service, the Commission reviews the transmission projects and their general environmental impacts, but no specific routes are identified, nor are landowners notified. The transmission improvements discussed in the EIS or EA represent a possible ATC solution. Closer to the actual time of construction, the ATC does further studies to identify the best solution and acquires more up-to-date knowledge about other power plants that are in-service at the time. The ATC then files a construction application (if necessary) based on this updated and more accurate information.

Transmission lines required for specific power sales

The ATC performs a Transmission Service Study (TSS) when they get a Transmission Service Request (TSR) from a customer for a particular amount of power over a certain period. Based on the TSS, the ATC approves or denies the TSR. If it approves the TSR, then the ATC enters into a contract with the customer, which is often contingent on the ATC's ability to make any necessary transmission improvements in time for the particular sales. If the ATC denies the TSR, the ATC will do a "transmission facilities study" if the customer requests one. The facilities study identifies what new transmission facilities are needed to provide service. These studies and contracts can apply to both existing and proposed power plants.

Environmental impacts

The number of uncertainties surrounding the identification of transmission required for a proposed power plant could lead to misidentification of needed transmission lines. This could ultimately cause fewer, more, or different transmission line construction than predicted, resulting in fewer, more, or different environmental impacts than those considered by the Commission when making its decision on proposed generating facilities. Once a power plant is built, the FERC requires the ATC to provide transmission service for plant sales.

Ways to reduce environmental impacts

- Reduce the uncertainty of generation construction
- Provide early analysis of transmission requirements to potential developers
- Focus on generation projects likely to be built
- Give potential generation providers information about sites requiring less transmission
- Encourage developers of mid-range size power plants

4. Ways that county and local government could minimize electric transmission impacts

Factoring local information and values into transmission planning

The ATC solicits comments on their transmission plans, including a public meeting in each transmission planning area. Refer to Figure EA-7 and Table EA-3. Since these plans do not usually include specific routes, the ATC cannot notify individual landowners. Instead, the ATC relies on the advice and comments of local officials, particularly those knowledgeable about local resources. The involvement of knowledgeable, local officials is important for two reasons. The ATC factors their comments into decisions about which avenues of transmission planning to pursue, and what environmental problems to mitigate.

Eventually, many, but not all, landowners will have an opportunity to comment on a proposed transmission line. Many rebuilds and upgrades of the existing transmission system do not require approval by the PSC. Power lines associated with power plants proposed by private developers usually have routes identified for transmission construction required in the near-term, but not for construction needed beyond two or three years, or construction dependent on the building decisions of other power plant developers. Refer to Section 3.

Table EA-3 Public meetings on ATC's 2002 Transmission Assessment	
Places	Tentative dates
Appleton – Kickoff meeting Holiday Inn 150 S. Nicolet Road	September 5, 2002
Milwaukee, Zone 5 Four Points Hotel 4747 S. Howell Avenue	September 12, 2002
Janesville, Zone 3 Holiday Inn 3100 Wellington Place	September 26, 2002
Manistique, MI, Zone 2 Comfort Inn 726 E. Lakeshore Drive	October 15, 2002
Rhineland, Zone 1 Holiday Inn 668 W. Kemp Street	October 16, 2002
Green Bay, Zone 4 Holiday Inn 2580 S. Ashland Avenue	October 17, 2002

Zoning protection for existing transmission line rights-of-way (ROW)

The best way to minimize the overall impact of transmission construction is to anticipate its occurrence. The location of existing transmission lines is now part of Wisconsin's Geographic Information System (GIS) data base. Existing transmission ROW are an existing and dynamic land use. Over time, the electric power line undergoes maintenance, repair – and upgrading. To allow for expanding the ROWs (if needed) for upgrades, it would be helpful if local governments identified and zoned a narrow strip of land surrounding the ROW easement. This could make upgrades easier, more cost-effective, or visually appealing. In some cases, if upgrading an existing line is feasible, construction of a new transmission line may not be needed.

The purpose of locating a narrow utility zone along an existing easement is to protect the ROW. New homes and businesses are frequently built adjacent to existing transmission line ROW. When buildings are close to the ROW, they constrain the options available for upgrading the transmission structures, and increase the potential for impacts due to the need for construction equipment to access the ROW.

Potential locations for new transmission lines in county plans

The ATC has identified local government officials; including planners, zoners, and engineers, as the most appropriate representatives of the “general public” at the ATC’s annual public meetings. If counties and other local governments become aware that the ATC may need an east-west (or north-south, etc.) route through a particular county for a new transmission line, local officials could include these potential lines in their land use and zoning plans. For example, local officials may wish to acquire additional land or easements along new roads or highways, as land set aside for future power lines.

Local government approvals for new developments

When local governments review proposed developments, they usually consider the location of roads, sewer, and sometimes electric distribution lines. However, by working with the ATC, it may be possible to identify future locations for distribution substations and the electric transmission line(s) that connect these substations to the electric system. Distribution substations convert the high-voltage of transmission lines to the low-voltage of distribution lines that run down rural roads or back lot lines to the transformers of individual customers. Major development in a new geographic area will trigger the need for a new distribution substation in order to provide reliable service to the new electric load. The ATC may need to connect the new distribution substation directly to the existing transmission system with a short, new transmission line - rather than just extending distribution lines from the existing distribution substation.

Contracts between IPPs and local governments limit local impacts

In most recent power plant cases reviewed by the PSC, the town or village, and county governments at proposed plant sites worked to reach agreements on local issues with the power plant developer, and signed contracts outlining agreed upon specifications. Local issues include such items as noise, landscaping, aesthetics, access roads, site fencing and lighting, future site development, and traffic.

5. Uncertainties related to the electricity industry

Currently there are many uncertainties that affect electricity use, patterns of electricity flow, electricity service – and, ultimately, electric facility construction. The activities of private power developers are difficult to predict. For example, the PSC has approved 2,033 MW of generation for which no construction has started. The results of ATC power flow studies vary considerably, depending on whether or not the computer model assumes that these plants are in-service.

Much proposed transmission construction is associated with connecting new power plants to the existing electric system or providing transmission paths for power sales from these plants. Several uncertainties surround the issue of which power plant proposals go forward and which do not. FERC is in the process of developing policies for the transmission system. One outstanding issue is the extent to which the power plant developer pays transmission costs associated with a proposed plant and the extent to which these costs are socialized, or paid for in customers’ electric rates. The ATC and MISO are new organizations that are currently developing policies and procedures such as, how much guidance to give to power producers looking for sites, and how to prioritize requests for studies on potential interconnections and power sales.

The EPA and WDNR are beginning to implement the 1997 change in emission standards, and the WDNR is developing new rules for the control of mercury emissions. The new emissions rules for ozone could further restrict the construction of new power plants and industries in southeast Wisconsin, but the solution to this problem will need to be regional (multi-state). Mercury controls will increase the costs of new, coal-fired power plants. Air monitoring stations in Wisconsin have almost completed gathering the data needed to determine whether Wisconsin meets air quality standards for the smaller particulate sizes (PM2.5). While carbon dioxide is still unregulated in the U.S., that may change.

The economies of Wisconsin and the U.S., and developments in the power market will affect electricity use and flows. Uncertainties include the speed at which the economy recovers from the 2001 recession, and the speed of population growth. Short- and long-term weather changes, whether considered normal trends or global warming, will affect electricity use patterns. Decisions by manufacturers and customers will determine the degree to which people will continue their increased use of electricity in machines, appliances, and industrial processes.

Retail electricity providers will affect transmission needs. They must decide how much capacity to purchase, how much generation to build, whether to own generation or contract with a power provider, and what energy efficiency or load management programs to implement.

6. Activities and Information

Anyone interested in pursuing any of the subjects covered in the SEA 2002 or this document is welcome to attend PSC public hearings on individual, proposed projects or on the SEA itself. The ATC is also holding public meetings on its 2002 transmission assessment. Information is also available on various Holding Company, utility, ATC, and PSC websites. Attached is a form for ordering informational publications from the PSC.

Strategic Energy Assessment

Document availability

The Executive Summary of the draft SEA is available on our web site for viewing; the complete draft SEA, in Adobe Acrobat format (.pdf), is also available for downloading/viewing on our website. Hard copies of the draft SEA may be requested by submitting a written request to Records Management, Public Service Commission of Wisconsin, P.O. Box 7854, Madison, WI 53707, or by calling (608) 261-8524 or by e-mail: pscsecs@psc.state.wi.us. There is no charge for hard copies of the draft SEA.

To comment on the SEA

Comments are due to Lois J. Hubert, SEA Coordinator by noon of Monday, September 30, 2002. (If faxed, by noon on Friday, September 27, 2002).

SEA hearing

The Commission will hold a public hearing on Friday, September 27, 2002 at 9 am at the Public Service Commission offices in Madison.

PSC docket numbers for individual projects

Power Plant Project	Docket Number
Arpin Energy Center, LLC in the Town of sherry, Wood County	9344-CE-100
Fox Energy, LLC in Outagamie County	05-CE-115
Mirant Corporation, LLC in Portage county	05-CE-116
We Energy, LLC in the City of Port Washington	05-CE-117
Madison Gas & Electric, LLC Cogeneration plant in the City of Madison	05-CE-121
250 MW Coal addition to the Stoneman Plant in Cassville	05-CE-122
Wisconsin Power Project, LLC in Waukesha County	05-CE-126
Muskego Energy Center, LLC in Waukesha county	05-CE-127
Rainy River Energy – Wisconsin, LLC in the City of Superior	05-CE-128
We Energy, LLC in the City of Oak Creek	05-CE-130
Transmission Line Project	Docket Number
Arrowhead to Weston 345kV	05-CE-113
Rebuild Whitewater to Mukwonago 138 kV	137-E-105

Web addresses for major electric service providers in Wisconsin

Madison Gas & Electric Company <http://www.mge.com/index.htm>
 Northern States Power Company - Wisconsin <http://www.xcelenergy.com/>
 Wisconsin Electric Power Company <http://www.wisconsinenergy.com/>
 Wisconsin Power and Light Company <http://www.alliantenergy.com/index.php3>
 Wisconsin Public Service Corporation <http://www.wpsr.com/>
 Wisconsin Public Power System <http://www.wppisys.org/>
 Dairyland Power Cooperative <http://www.dairylandpower.com/>

Other interesting energy-related Wisconsin web sites

Wisconsin Stewardship Network <http://www.wsn.org/>
 Wisconsin Green Building Alliance <http://www.wgba.org/>

Figure EA-7 ATC Zone map

